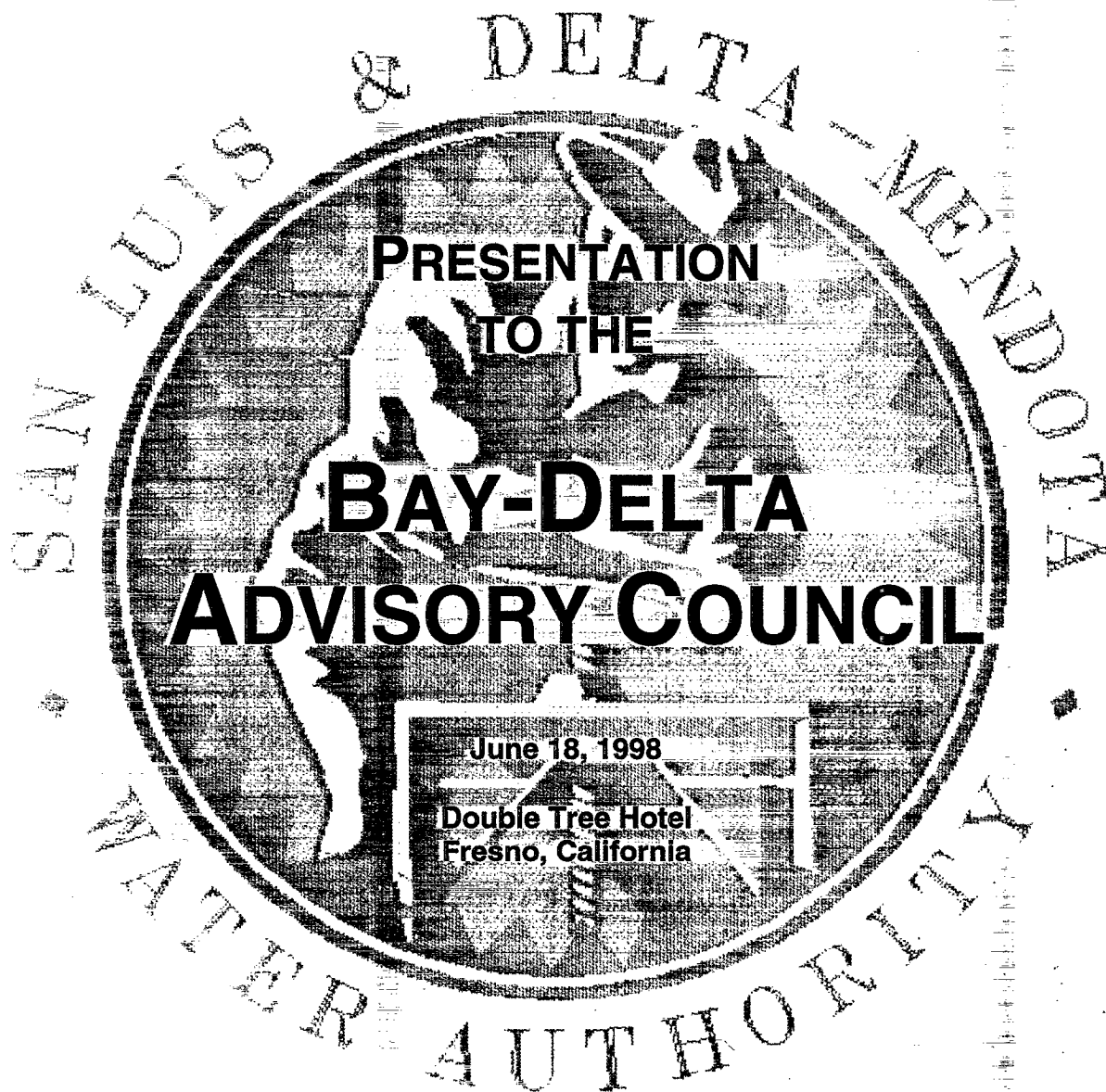


San Luis & Delta-Mendota Water Authority



**SAN LUIS & DELTA-MENDOTA WATER AUTHORITY
PRESENTATION TO THE BAY DELTA ADVISORY COUNCIL**

**JUNE 18, 1998
FRESNO, CALIFORNIA**

AGENDA

Opening Remarks, Mike Stearns, Chairman, San Luis & Delta-Mendota Water Authority

**Panel 1. Drainage Management in the Grasslands Water Basin:
Alternatives to Land Retirement**

Joe McGahan, Drainage Coordinator, Grassland Area Farmers:
History of the problem, establishment of the Grassland
Bypass Project
Dennis Falaschi, Manager, Panoche Water District:
Description of Grassland Drainage Management Program
Joe McGahan: Summary of results

Panel 2. Land Retirement Perspectives

Dr. Don Villarejo, Executive Director, California Institute for Rural Studies:
Socioeconomic impacts of land retirement
David Orth, Manager, Westlands Water District: Land retirement as
part of Westlands' supply plan

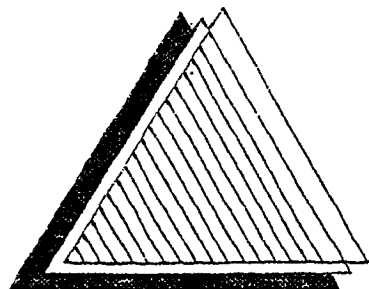
Panel 3. Farmers' Experiences with Progressive Water Management

John Giovannetti, B.E. Giovannetti & Sons, Huron
Chris Hurd, Circle G Farms, Firebaugh
Marvin Meyers, Meyers Farming, Firebaugh
Sue Redfern, Redfern Ranches, Dos Palos

Panel 4. Overview of Changes on the Westside

Dr. David Sunding, Director, Center for Sustainable Resource Development,
UC Berkeley: Economic responses to supply shortages on
the westside
Laura King, Director of Strategic Planning, San Luis & Delta-Mendota
Water Authority: Summary of trends in water price, irrigation
technology and cropping patterns

**Concluding Remarks, Mike Stearns
Question and Answers**



D-M Information Systems, Inc.

GAP NOTED

SAN LUIS & DELTA-MENDOTA WATER AUTHORITY

BACKGROUND

The San Luis & Delta-Mendota Water Authority was established in January of 1992 and consists of 32 member agencies, which receive Central Valley Project water under contract with the Bureau of Reclamation to meet the water needs of over 1.3 million acres of highly productive agricultural lands within the western San Joaquin Valley, San Benito and Sanata Clara Counties. Authority members also provide approximately 200,000 acre-feet annually for municipal and industrial uses, primarily in the Santa Clara Valley, and 350,000 to 450,000 acre-feet of water annually for waterfowl and wildlife habitat in the San Joaquin Valley.

The fundamental purpose of establishing the Authority was to assume the operation and maintenance responsibilities of certain Bureau of Reclamation facilities, at an optimum level and a lower cost. In addition, the Authority serves the information and representation needs of our members by developing, providing and disseminating information to legislative, administrative and judicial bodies concerning a variety of issues, such as: Sacramento-San Joaquin Delta exports, water quality, water development, conservation, distribution, utilization and drainage issues, contractual rights, surface and groundwater management, and any other common interest of the member agencies. The Authority played an instrumental role in developing legislation recently passed by California voters as Proposition 204.

The governing body of the Authority consists of a 19-member Board of Directors, divided into five divisions with directors selected from within each division. Each Director, and respective Alternate Director, is a member of the governing body or an appointed staff member of his or her agency.

SAN LUIS & DELTA-MENDOTA WATER AUTHORITY

Member Agencies Acreage & Water Supply

DISTRICT	ACREAGE	CVP/AG AF	CVP/M&I AF	EXCHANGE AF	WETLANDS AF	TOTAL AF
DIVISION 1						
1. Banta-Carbona ID	14,987	25,000				25,000
* 2. Centinella Water District	840	2,500				2,500
** 3. New Del Puerto Water Dist	49,902	140,210				140,210
4. City of Tracy			10,000			10,000
5. Patterson Water Dist	13,944	16,500		6000		22,500
6. Plain View Water Dist	6,384	20,600				20,600
7. West Side ID	10,145	7,500				7,500
8. West Stanislaus ID	21,730	50,000				50,000
Sub Total	117,932	262,310	10,000	6,000	0	278,310
DIVISION 2						
1. Panoche Water Dist	38,038	94,000				94,000
2. San Luis Water Dist	56,663	124,080	1,000			125,080
3. Westlands Water Dist	603,173	1,144,000	6,000			1,150,000
Sub Total:	697,874	1,362,080	7,000	0	0	1,369,080
DIVISION 3						
1. C.C.I.D	144,973			532,400		532,400
2. Columbia Canal Co.	16,190			59,000		59,000
3. Firebaugh Canal WD	22,640			85,000		85,000
4. Grassland Water Dist	51,539				53,500	53,500
5. Pleasant Vally WD	38,000					
6. San Luis Canal Co.	47,285			163,600		163,600
Sub Total:	320,627	0	0	840,000	53,500	893,500
DIVISION 4						
1. Santa Clara Valley WD	845,000	33,100	119,400			152,500
2. San Benito County WD	48,000	43,500				43,500
3. Pajaro Valley Water Mgmt Agcy	30,000					0
Sub Total:	923,000	76,600	119,400	0	0	196,000

CONTRIBUTION: Nelson; Mizuno; Medeiros, Orth

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DISTRICT	ACREAGE	CVP/AG AF	CVP/M&I AF	EXCHANGE AF	WETLANDS AF	TOTAL AF
DIVISION 5						
1. Broad View Water Dist	9,000	27,000				27,000
2. Eagle Field WD	1,370	4,550				4,550
3. Laguna Water Dist	428	800				800
4. Mercy Spring WD	3,392	13,300				13,300
5. Oro Loma Water Dist	1,108	4,600				4,600
6. Pacheco Water Dist	4,400	10,080				10,080
7. Widren Water Dist	835	2,990				2,990
8. Fresno Slough WD	1,320	4,000		866		4,866
9. James Irrigation Dist	23,835	35,300		9,700		45,000
10. Reclamation Dist 1606	261	228		342		570
11. Tranquility ID	9,790	13,800		20,200		34,000
12. Turner Island	7,600	0				0
Sub Total:	63,339	116,648	0	31,108	0	147,756

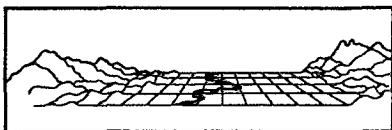
Total Acreage: 2,122,772

TOTAL ACRE FEET:	1,817,638	136,400	877,108	53,500	2,884,646
	63%	5%	30%	2%	100%

Total Membership: 32

*: Centinella Water District execution of JPA pending

** : Consolidation of 11 districts under Del Puerto Water District effective March 1, 1995



THE CALIFORNIA INSTITUTE FOR RURAL STUDIES

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Don Villarejo, Ph.D.

June 18, 1998

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Statement of Don Villarejo, Ph.D.
Executive Director, California Institute for Rural Studies, Inc.

The CalFed process, a primary focus of today's meeting, is but one piece of a much larger policy shift regarding irrigated agriculture in the West. Environmental concerns, once not even seriously considered, are now at least as important a part of Federal and State policy as are supplying water to agricultural and urban users.

However, virtually all discussion of water policy in California appears to be predicated on reducing water supplies to agriculture. Whether it is the allocation of 800,000 acre-ft per year to environmental restoration, as required by the Central Valley Project Improvement Act (CVPIA), or opening the door to large-scale water transfers to moneyed urban interests, agriculture will lose significant supplies. Most recently, Bulletin 160-98 of the California Department of Water Resources, titled *The California Water Plan Update* (January 1998), discusses the projected growth of urban and environmental water use in California to the Year 2020. Urban use will increase by 37% and environmental use will increase by 26%. Agriculture's use is projected to experience a net decline of 2.3 million acre-ft per year by 2020.

At present levels of water use, these immense reductions of irrigation supplies are equivalent to taking hundreds of thousands of acres of land out of production. California stands to lose more farm land as a result of environmental policy than to all of the effects of conversion of farm land due to urbanization.

But the requirements of CVPIA and the projected decline in agricultural water use do not seem to be enough to satisfy environmental advocates. In a letter to CalFed Bay-Delta Program Executive Director Lester Snow, dated September 10, 1997, a number of environmental organizations suggested that a "soft path" solution to Bay-Delta cleanup could be achieved if between 400,000 and 600,000 acres of San Joaquin Valley irrigated agricultural land were permanently retired. We were pleased that Lester Snow's response clearly indicated that this proposed new option was not on the table for consideration.

Largely absent from these discussions are the human impacts of taking hundreds of thousands of agricultural land out of production. There are only a two studies that I am aware of that have examined the socio-economic effects of reducing irrigation water deliveries to west side agriculture. The first, published in April 1985, was prepared by Dr. L. Tim Wallace and David



Strong, agricultural economists with the University of California Cooperative Extension Service. Wallace and Strong sought to determine the impacts of reallocating water from the 42,000 acre Drainage Study Area located southwest of the community of Mendota. They found a net reduction of \$35.4 million in direct farm cash receipts and a loss of \$27.7 million in indirect sales. In addition, the report found a loss of 916 jobs, a loss in personal income of about \$9.9 million, and a decline in property tax revenue of \$493,500. All figures are in 1984 dollars and have not been adjusted for the effects of inflation.

In 1994-95 CIRS conducted a retrospective socio-economic impact study in the community of Mendota, just thirty miles west of this hearing room. Our report was published in March 1996 and is titled *93640 at Risk: Farmers, Workers and Townspeople in an Era of Water Uncertainty*. Funding for the study was provided by the Community Alliance with Family Farmers, under a grant they received from the Ford Foundation.

The purpose of the study was to determine the socio-economic impacts of substantial reductions of irrigation supplies to an agricultural community. Mendota is a roughly one hundred square mile area bounded by the Postal Zip Code 93640 and comprises about 60,000 acres of irrigated farm land. The opportunity to examine these effects was provided by the unfortunate six-year 1987-92 drought that affected many farming areas of the state. Surface water supplies to this region were reduced by as much as 75% in the course of the drought period.

Agricultural economists and environmental advocates have long argued that when water supplies are reduced, or when irrigation water becomes more expensive, farmers will respond by switching their plantings from extensive to intensive crops. Thus, their predictions suggest that during the drought Mendota farmers would have increased their plantings of fresh vegetables and permanent crops, and would have correspondingly eliminated substantial plantings of extensive crops, such as wheat, alfalfa or cotton.

In fact, we found the opposite result. Overall, Mendota irrigated acreage declined by about 14% as a result of the drought. But instead of increased plantings of intensive crops, Mendota farmers actually *reduced* their acreage of fresh vegetable crops by as much as 37%, in the case of melons, whereas field crop plantings were reduced by just 5%. This is shown in Exhibit 1 (attached). The main reason for this decline is that when Mendota farmers attempted to substitute pumped ground water for the lost surface water deliveries, they found that the poor quality well water could not be used to grow salt-sensitive plants such as melons.

As a consequence of the tremendous decline in fresh vegetable production, Mendota payrolls fell by at least 14%, and three of the seven wholesale vegetable packing houses closed their doors and either went out of business or left the area.

Other adverse impacts in Mendota that were associated with the loss of irrigation water during the drought included:

- Loss of 26% of all of the farms of Mendota;
- Loss of 70% of small family farms;
- Retail sales in the community fell by 11%;
- Agricultural land values declined by about 30% (see Exhibit 2);
- Mendota city tax revenue declined both as a result of depressed business conditions and as a result of declining property values.

The prestigious National Academy of Sciences/National Research Council report *Water Transfers in the West: Efficiency, Equity, and the Environment* stated, "No issue gave the committee more trouble than the question of how to characterize and evaluate the effects of water transfers on small communities." Our study of the impact of reducing irrigation supplies in Mendota is the first attempt to do so. The results of our study are extremely disturbing.

In my view this committee needs to insist that proper socio-economic assessments be undertaken *before* any more water transfers, land retirement, or other schemes that take water from agricultural communities are permitted. At present, incalculable damage is occurring as the new environmentally-driven water ethic is being put into place. We are pleased that CalFed is in the process of initiating socio-economic impact assessment studies as a part of its process.

Next, mitigation measures need to be put into place to lessen the adverse community impact of environmentally-driven Federal and State water policy. CIRS supports the creation of a community-controlled fund to assist displaced workers as well as local government in these periods of adjustment.

Finally, I find it nothing short of arrogant and irresponsible for environmental advocacy groups to assert that policies that will take away the livelihood of tens of thousands of California farm workers are a "soft path" solution to the state's water problems. It is only soft if you don't have to make your living by manual labor in an agricultural field. It is time that we not only assessed the impact of such policies, but also put into place mitigation efforts to lessen the adverse effects.



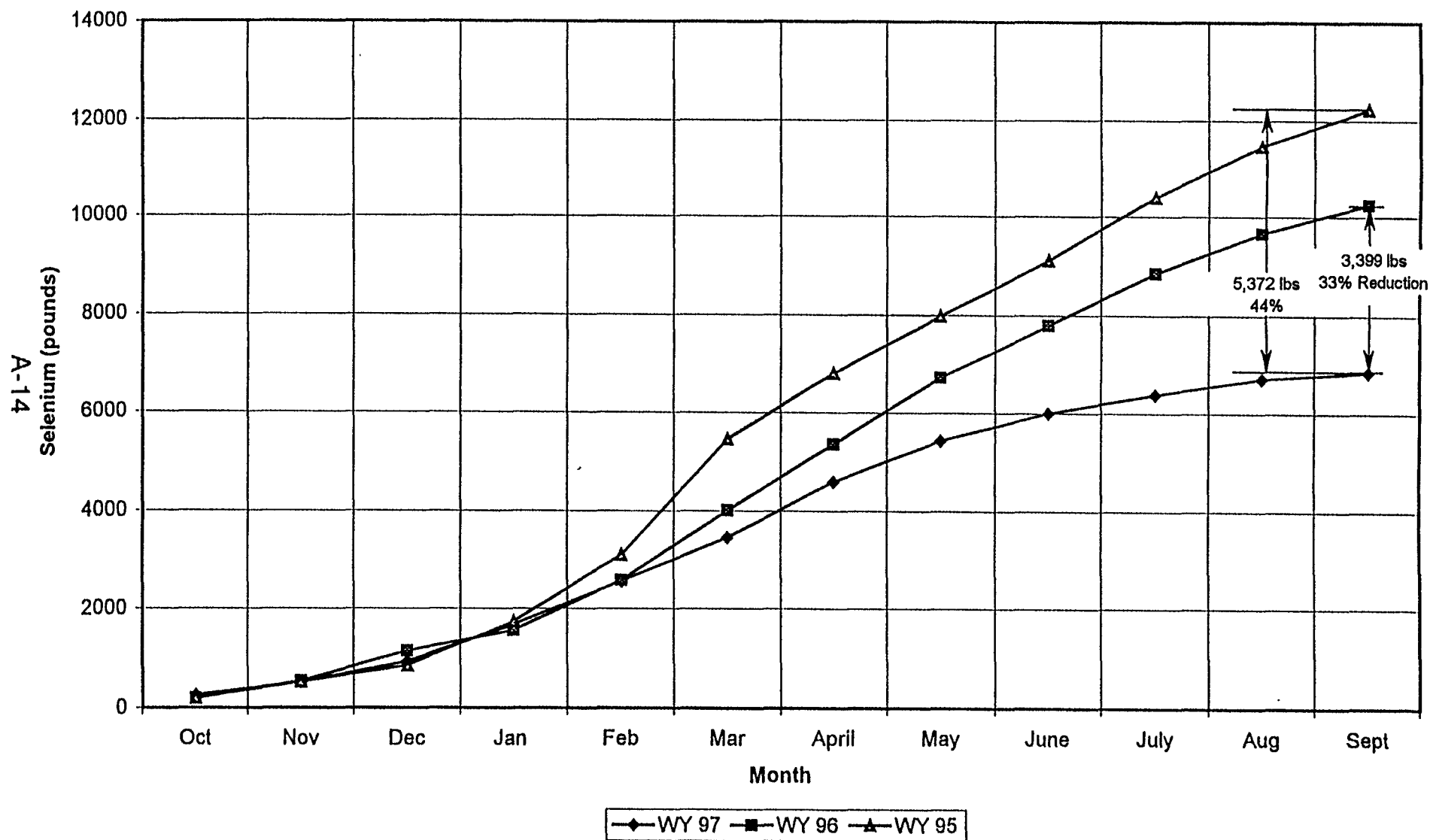
Implementation

- **Grassland Bypass Project**
- **Irrigation and Drainage System Improvement Loans (SRF and local)**
- **Grassland Monitoring Program (Local and region wide)**
- **District Workshops**

Source Control Activities

- **Tiered Water Pricing**
- **Sprinkler Pre-Irrigation**
- **Active Land Management Program**
- **Tailwater Return Policy**
- **Tile Sump Management**
- **Drain Water Storage and Timed Release**
- **Drain Water Reuse**
- **Drain Water Displacement (salt tolerant crops, dust control)**

Cumulative Discharge from Drainage Area



PRESENTATION BY LAURA KING
DIRECTOR OF STRATEGIC PLANNING
SAN LUIS & DELTA-MENDOTA WATER AUTHORITY
BEFORE THE
BAY DELTA ADVISORY COUNCIL
JUNE 18, 1998
FRESNO, CALIFORNIA

I. Introduction

I am pleased to be here today representing the 32 member agencies of the San Luis & Delta-Mendota Water Authority. The Water Authority strongly supports the CalFed program, and appreciates very much the Council's willingness to meet here in Fresno and hear our concerns regarding land retirement and agricultural water use.

Our members have made remarkable progress over the last decade in dealing with drainage management and water efficiency issues, as has been described by the speakers on the previous panels. While more progress is certainly possible, we believe we are very close to the limits of what is technically feasible and economically sustainable for our community. We are troubled by the view that the problems of the Bay-Delta and water supply needs of the state can be somehow balanced on the back of San Joaquin Valley agriculture. That view appears to ignore the magnitude of the changes that have already taken place in the Valley and the ingenuity of the farmers and districts in rising to the challenges they face. It also appears to ignore that many of the changes advocated by the environmental community regarding water management

practices have already occurred here in the San Joaquin Valley.

Today I want to describe to you trends in three areas: water prices, irrigation technology, and cropping patterns. Then I will review our overall supply picture and discuss what we are hoping to achieve from CalFed.

II. Trends in Water Prices

The days of \$3.50 per acre-foot water are over on the westside. In fact, they have been over for a number of years now, but the trend of water prices continues upward. Figures 1 through 5 show representative water rates for five of our districts, ranging from the 13,944 acre Patterson Water District to the largest, Westlands Water District (603,173 acres). To summarize from the figures, water rates charged by the Bureau of Reclamation to all five districts even a decade ago were substantially greater than the old \$3.50 rate, ranging from \$12.37 per acre-foot for Patterson to \$20.51 per acre-foot for San Luis. But since 1987, rates have again climbed dramatically, with percentage increases ranging from 130 to 177 percent. All of our ag service contractors are now paying the Bureau over \$30 per acre-foot, with San Luis Water District one of the highest at \$42.99 per acre-foot. As can be seen from the figures, the increases have resulted from a combination of rising operation and maintenance costs, increased capital and deficit rates, and, starting in 1992, the Restoration Fund.

In addition to these Bureau of Reclamation charges, districts have other water management costs that are passed along to their customers, so the typical district charge is much greater than the Bureau rate. In the case of Westlands, for example, all of its customers pay considerably more than the Bureau's \$36.22 rate. About two-thirds of the land in the district

receives water at a cost of \$40.17 per acre-foot, which includes the district's and the Water Authority's O&M charges. About 18 percent of Westlands deliveries are provided under a "provisional" water contract at the so-called "cost-of-service" rate, \$58.97 per acre-foot.

Another eight percent of water deliveries in Westlands are provided at the "full cost" rate, which ranges from \$86.42 to \$101.37 per acre-foot. In addition, Westlands farmers must pay \$10.46 per acre-foot as part of the CVPIA's hammer clause provision, which requires districts to pay an additional 1½ times their current Restoration Fund amount to the Bureau unless they have signed a binding agreement for early renewal of their contracts. (Westlands signed the binding agreement in September 1997, but will begin collecting funds in 1998-99 to set aside in a trust fund account in the event negotiations are not successful.) Taken altogether on a weighted average basis, Westlands farmers will pay \$51.26 per acre-foot for water in 1998, nearly fifty percent higher than the previous year's average rate of \$36.82, and almost three times the average rate of \$18.65 per acre-foot in 1985.

Other districts similarly include additional costs in the rates they charge their customers, to cover the costs of drainage programs as well as general O&M and overhead. For example, Broadview Water district, which pays \$30.14 per acre-foot for water purchased from the Bureau, charges its customers an additional \$18.00 per acre-foot in pumping costs, plus approximately \$76.00 per acre in fixed costs including drainage management costs, for a total of approximately \$71.19 per acre-foot in 1997.

In 1996, Panoche Water District charged its customers \$16 per acre-foot in addition to the Bureau charges, plus a standby drainage service fee of \$23.50 per acre. In 1998, the drainage fee went up to \$32.50 per acre, and the District also began collecting \$10.32 per acre-foot in Page 4

"hammer clause" charges, bringing the total customer cost to \$78.50 per acre-foot..

In addition, all of our districts have implemented some form of tiered pricing programs, as advocated by the environmental community and encouraged by the CVPIA. Tiered pricing is one of the tools used by districts participating in the Grassland drainage management program. For example, the Panoche Water District imposes an additional \$50 per acre-foot charge on all water deliveries above a specified tier. The District has two different tiers, one for pre-irrigation, for which the maximum allowed is 9 inches, and one for seasonal irrigation, for which the maximum is 2.4 acre-feet. All water use above either of these two tiers is charged \$50 per acre-foot in addition to the regular district water rate that would otherwise be charged. The Panoche board intends to provide for a seasonal tier rate to be assigned on a per-crop basis, as soon as field-by-field delivery measurement devices are installed district-wide.

III. Changes in Irrigation Practices

Partly due to rising water costs, partly due to the need to control drainage, but mostly due to the chronic shortage of water in our area, there have been significant shifts in irrigation practices over the past decade. I will describe these changes for three representative districts, Westlands, Panoche and Broadview.

As the table below shows, there has been a significant increase in the usage of sprinkler and drip irrigation systems in the Westlands Water District. The amount of acreage irrigated with the traditional furrow approach has been cut nearly in half, from about 60% in 1985 to 32% in 1997. The efficiency of furrow irrigation can be significantly enhanced by the use of sprinklers in pre-irrigation; this combined practice has nearly tripled, from 15% of the acreage in 1985 to 44%

in 1997. Drip/trickle systems are still a relatively small proportion of the total acreage, 8%, but represent the fastest growing irrigation approach due to the recent movement away from grains to trees and other higher value, permanent crops.

WESTLANDS WD PERCENT OF LANDS IRRIGATED

Type of System	1985	1997
Surface		
Furrow	60	32
Border Strip	3	2
Comb. Sprinkler/Furrow	15	44
Pressurized		
Sprinkler	21	14
Drip/Trickle	1	8

The Panoche Water District has made similar advances in irrigation technology over the last three to five years. Panoche growers have moved from farming the majority of the District's 38,000 acres with furrow irrigation throughout the year to using hand move and wheel-line sprinklers on 23,000 acres, drip systems on 3,700 acres, and gated pipe on 3,250 acres. Where furrow systems are still in use, management has now improved so that quarter-mile runs are being used.

Similarly, the 9,089 acre Broadview Water District has seen a widespread shift in irrigation technology, with 92% of the acreage using furrow in 1989, while nearly 60% of the acreage in the district is now irrigated using combined sprinkler/furrow methods.

IV. Cropping Changes on the Westside

In response to increasing water costs and, ironically, reduced supply reliability (forcing higher cost, market purchases) many farmers have shifted their crop plantings to higher value, permanent crops, a trend predicted and encouraged by the environmental community. Shifts in acreage are described below for the Westlands, San Luis, and Panoche districts.

Since 1986, Westlands has seen a 37% increase in acreage planted to vegetable crops, with about a third of the increase coming from tomatoes and nearly a thousand acres planted to asparagus, which had not been grown in the District before. Vegetables accounted for about 21% of the acreage in Westlands in 1986, and now comprise about 29% of the acreage.

During this same period, there has been a 106% increase in tree and vine acreage, with almonds alone accounting for about a quarter of the increase. In fact, the combined acreage of fruit, nut and vegetable crops in Westlands in 1997 outnumbered the Acala cotton acreage — 227,093 acres to 203,375. Almonds have moved up to become fifth place in the list of top ten crops in Westlands, with nearly 20,000 acres in the district.

The San Luis Water District has experienced a similar gain in almond acreage, which more than tripled from 2,119 acres in 1988 to 6,820 in 1997. Total trees and vines in the district nearly doubled, from 5,382 acres in 1988 to 10,596 acres in 1997 -- almost a quarter of the district. Alfalfa acreage was cut in half in the same period, from 4,656 acres to 1,976 acres in 1997.

In Panoche Water District the historical crop mix consisted of sugar beets, alfalfa, safflower, various grain crops and cotton, which made up 70% of the district. Now the crop rotation has changed so that the district currently shows a base whose top five crops, in terms of acres farmed, are melons, fresh market and cannery tomatoes, asparagus, alfalfa, and cotton. The

alfalfa, melon and tomato crop base has increased 100% just in the last three years to a current total of 10,000 acres, over a quarter of the district's 38,000 acres. The district is starting to see a conversion of the historical row crops to permanent plantings of grapes, almonds and asparagus. There have been nine hundred acres of new almond and grape plantings since 1992.

V. The Water Supply Situation: Why Relief is Needed

The irrigation and cropping trends described above are a response to a combination of factors, including a decreased and less reliable water supply. Yet the trend toward permanent crops, combined with the greater investments in irrigation technology, actually increases many farmers' dependence on an adequate water supply. While the danger of this dependence has been masked by the recent run of wet years, it will become apparent if we return to a more normal weather pattern or another drought occurs before a CalFed solution has been implemented, bringing supply relief to this area.

Most of the supply shortage experienced in this area is a result of the CVPIA. While our members generally acknowledge and are supporting to the best of our ability the environmental protection goals of the CVPIA, its reforms are being achieved unfortunately at the expense of a relatively small group of California water users. The CVPIA focuses exclusively on CVP contractors, who use only about 20% of the water used in the state. Neither State Water Project contractors nor other water diverters are asked to share financially or in terms of water supply given up to the environment. Within the CVP itself, the cutbacks necessary to meet the CVPIA's environmental requirements fall on about 25% of the CVP contractors, primarily the ag service contractors in our area.

During the last five years since passage of the CVPIA, the ag service contractors in our area received on average only 75% of contract supply, despite the fact that four of those five years were wet or very wet years. Looking back to 1990, when the drought and Endangered Species Act restrictions affected our supplies, the average for the period was only about 60%. Our long-term models indicate that at best our ag service contractors can expect a 65 to 70% supply on average under the CVPIA, the Bay-Delta Accord and ESA, as they are currently being implemented.

Some have responded to our concerns about water shortages by pointing to market purchases some farmers and districts have been able to make to augment the CVP supplies. However, our experience with supplemental water purchases has shown that we have only been able to meet water needs during the wet years, because in other years the water has been unavailable for purchase or too expensive. Even in 1993, which was a wet year, Westlands was unable to make up the gap with purchases, because CVP deliveries were only 50% that year. Another problem with the supplemental purchase approach is that the supplemental water is almost always short-term in nature, and subject to great uncertainty and unpredictability. Supplemental water often is acquired as an exchange with an obligation to return the water in future years, an example being 125,000 acre-feet acquired by Westlands from Kern County Water Agency in 1997. Delivery schedules often are impacted by limited storage and conveyance capacity in state and federal projects.

Also, supplemental water typically comes at a higher price than the CVP contract supply — currently about \$70 per acre-foot, compared to Westlands' current average water rate of about \$51 per acre-foot. Supplemental water prices ranged as high as \$110 per acre-foot in 1994, and

are likely to continue upward in the future, with competition from refuge and instream water purchases under the CVPIA and the CalFed program.

Our farmers' ability to rely on the market to make up for CVP cutbacks is limited by the overall economic constraints they face. The commodity prices received by farmers are shaped by international market forces and have no connection to production costs. Taking for example the prices received for cotton and tomatoes, in 1990 they were \$51.05/ton and \$0.789/pound respectively. In 1997, they still hovered at \$51.51/ton and \$0.780/pound respectively, despite the following cost increases over the same period: labor, 48%; equipment, 40%; materials, 25%; and water, several hundred percent. Our farmers' profit margins have become so narrow, that buying up water on the market is a limited solution at best, and really only affordable, ironically, during wet years.

VI. Conclusion

In response to a combination of higher water prices and reduced water supplies, our farmers have stepped up to the plate and are managing their water resources efficiently and responsibly. They have developed an effective drainage management program, they are squeezing every dollar of productivity they can out of every drop of water, and they have managed to survive with considerably less CVP supplies than the historical contract deliveries they had come to rely upon.

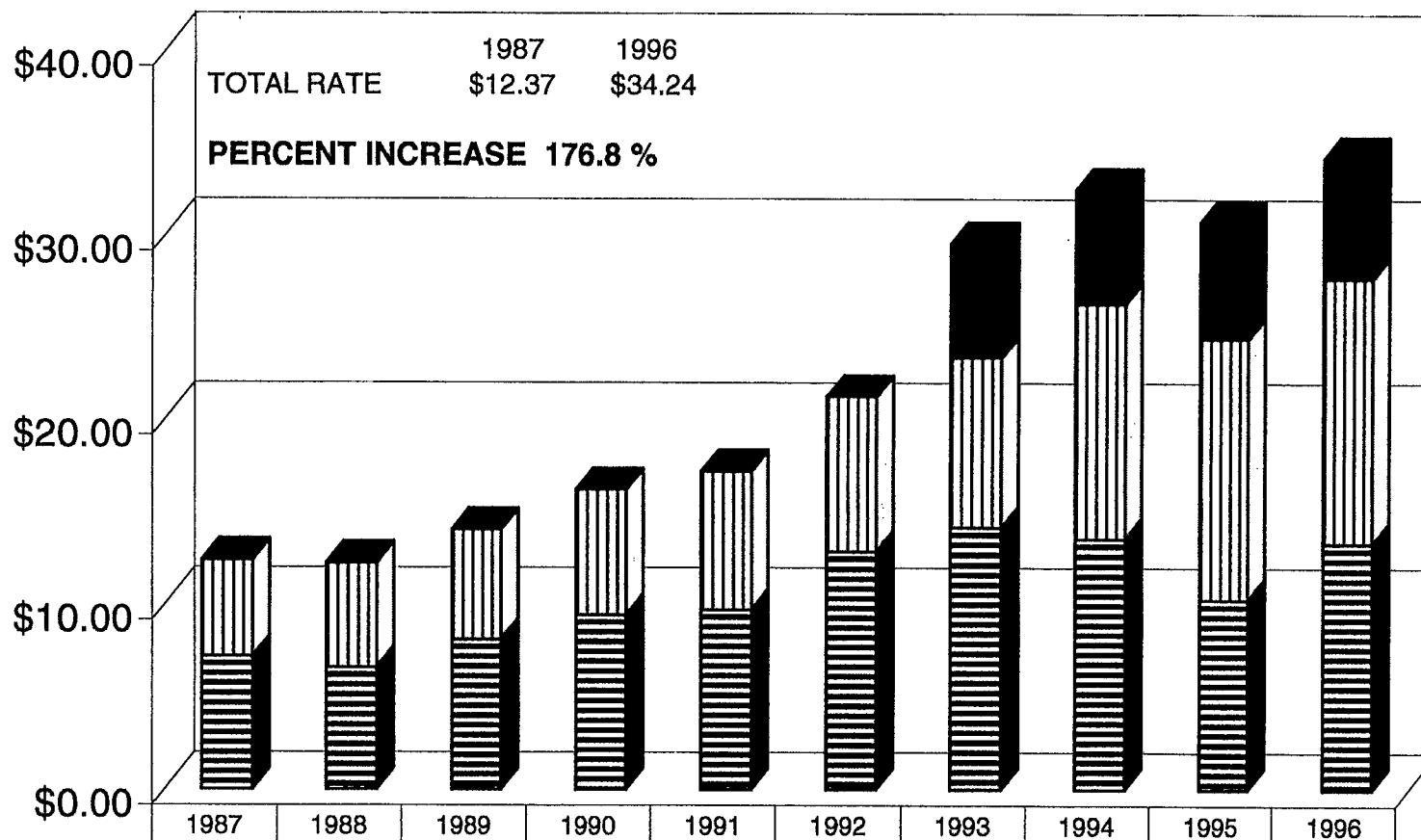
But their survival is tenuous. Five years ago, at the tail end of the drought, "for sale" signs were ubiquitous throughout the Valley. Now, after four wet years, the "for sale" signs have come down and farming is profitable again -- or, at least it was until El Nino gave us one of the

craziest weather years in our lifetime. But when the normal years return, we will see once again the kinds of socioeconomic effects described by Don Villarejo in his report, unless we can come up with an affordable replacement supply for the water that has been given up to environmental purposes. Given the degree of efficiency already practiced in the San Joaquin Valley, it is unrealistic to expect that by somehow forcing farmers to become more efficient, more water would become available for the Delta. Given the high productivity and value of agriculture in this area, it is also not realistic to expect that massive land retirement in this region will be the solution to the state's water supplies.

Agriculture is not the villain. Agriculture provides significant socioeconomic and environmental benefits. As Marc Reisner put it in his report on Water Policy and Farmland Protection, "Any bird, mammal, amphibian, or insect is apt to prefer a farmed field to a treeless new subdivision or shopping mall." Agriculture is a valuable state resource that we should protect, rather than target for cutbacks.

FIGURE 1

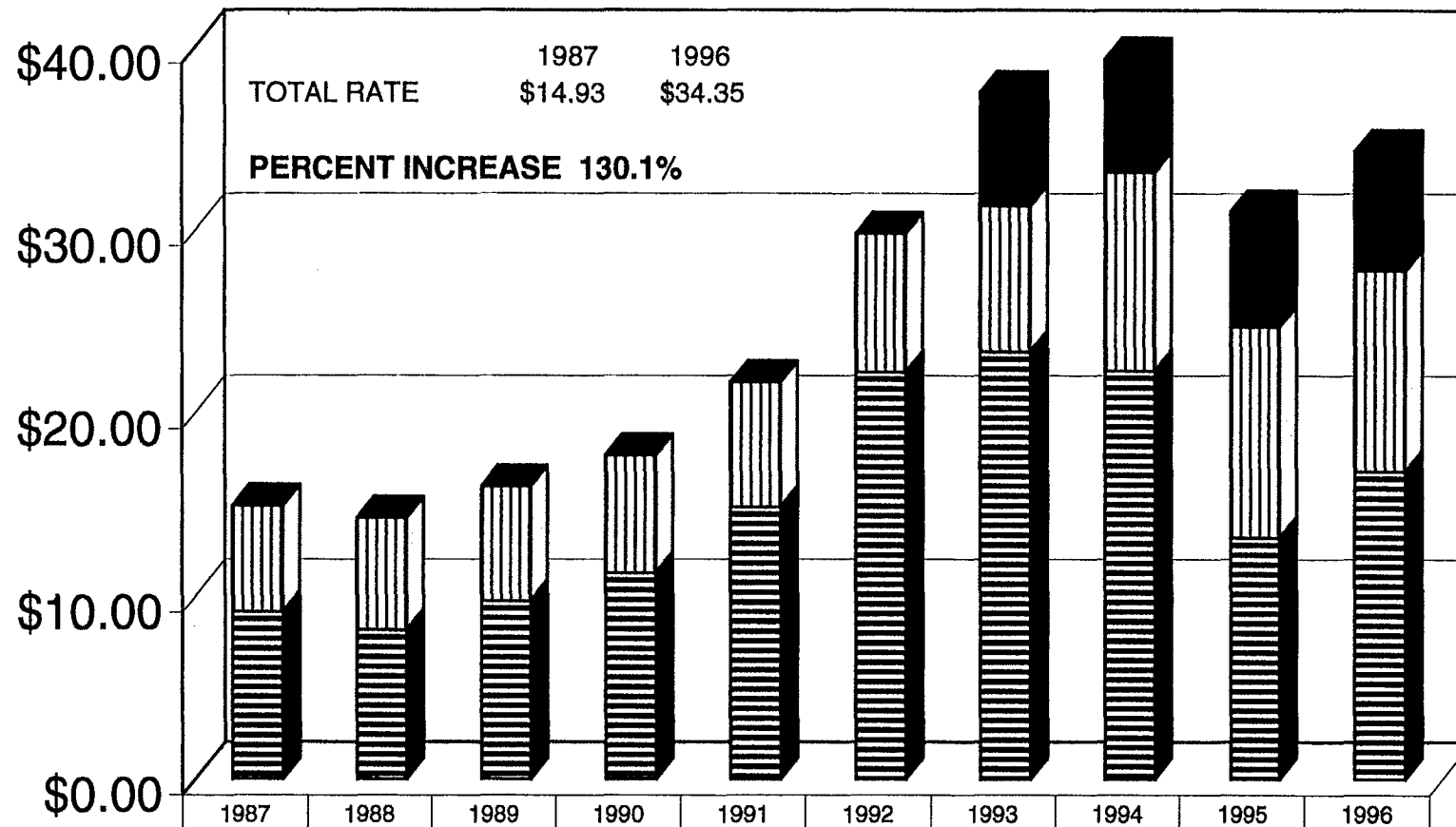
USBR WATER RATE PATTERSON WATER DISTRICT 1987 - 1996



	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Restoration	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$6.20	\$6.20	\$6.35	\$6.53
Deficit & Capital Rate	\$5.21	\$5.67	\$5.94	\$6.77	\$7.49	\$8.40	\$9.22	\$12.78	\$14.14	\$14.41
O&M Rate	\$7.16	\$6.56	\$8.08	\$9.43	\$9.71	\$12.84	\$14.15	\$13.54	\$10.28	\$13.30

FIGURE 2

**USBR WATER RATE
PANOCHÉ WATER DISTRICT - SAN LUIS CANAL
1987 - 1996**



	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Restoration	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$6.20	\$6.20	\$6.35	\$6.53
Deficit & Capital Rate	\$5.79	\$6.11	\$6.24	\$6.41	\$6.82	\$7.60	\$8.01	\$10.90	\$11.51	\$11.01
O&M Rate	\$9.14	\$8.16	\$9.74	\$11.28	\$14.86	\$22.23	\$23.32	\$22.29	\$13.18	\$16.81

FIGURE 3

USBR WATER RATE
SAN LUIS WATER DISTRICT - SAN LUIS CANAL
1987 - 1996

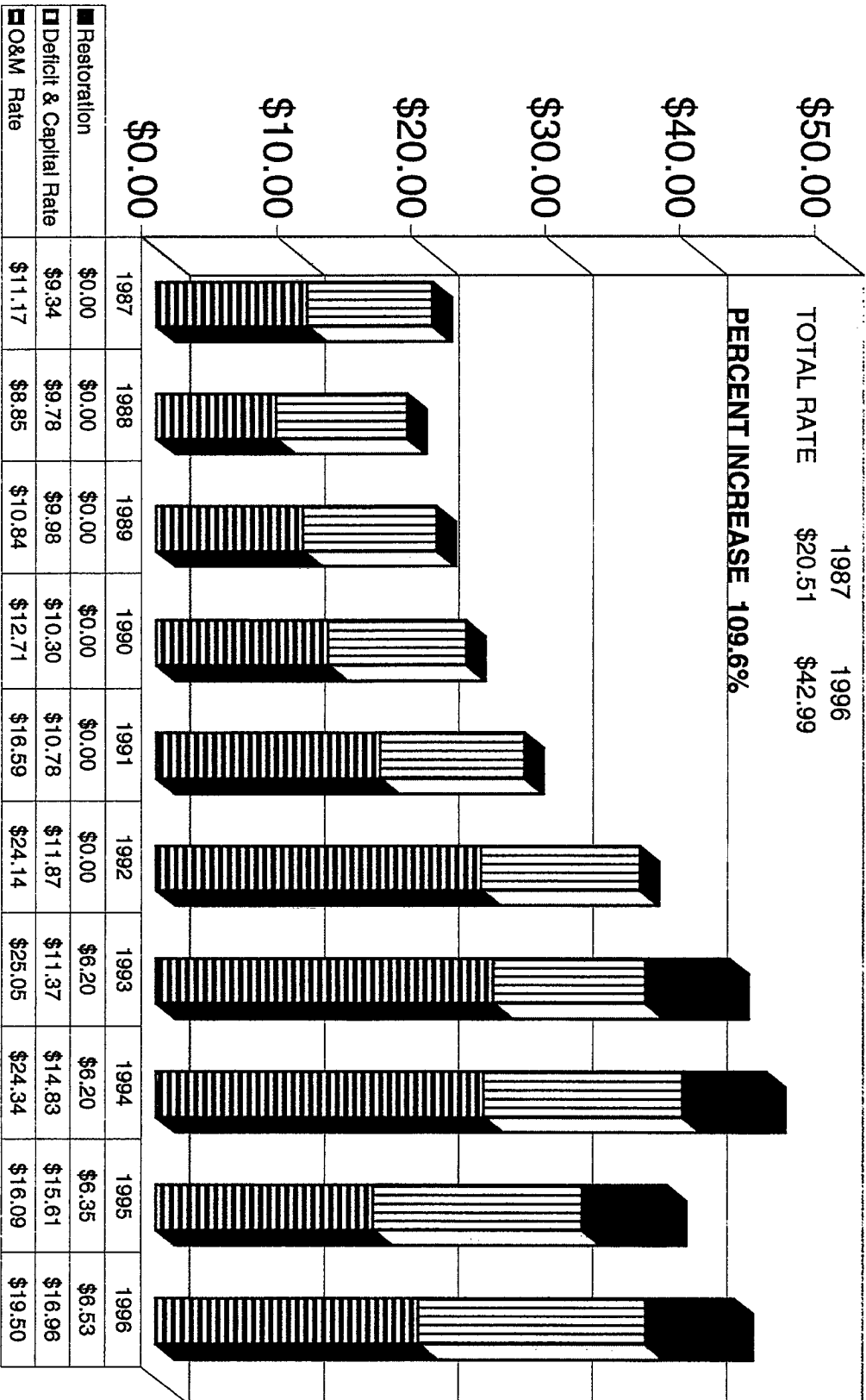
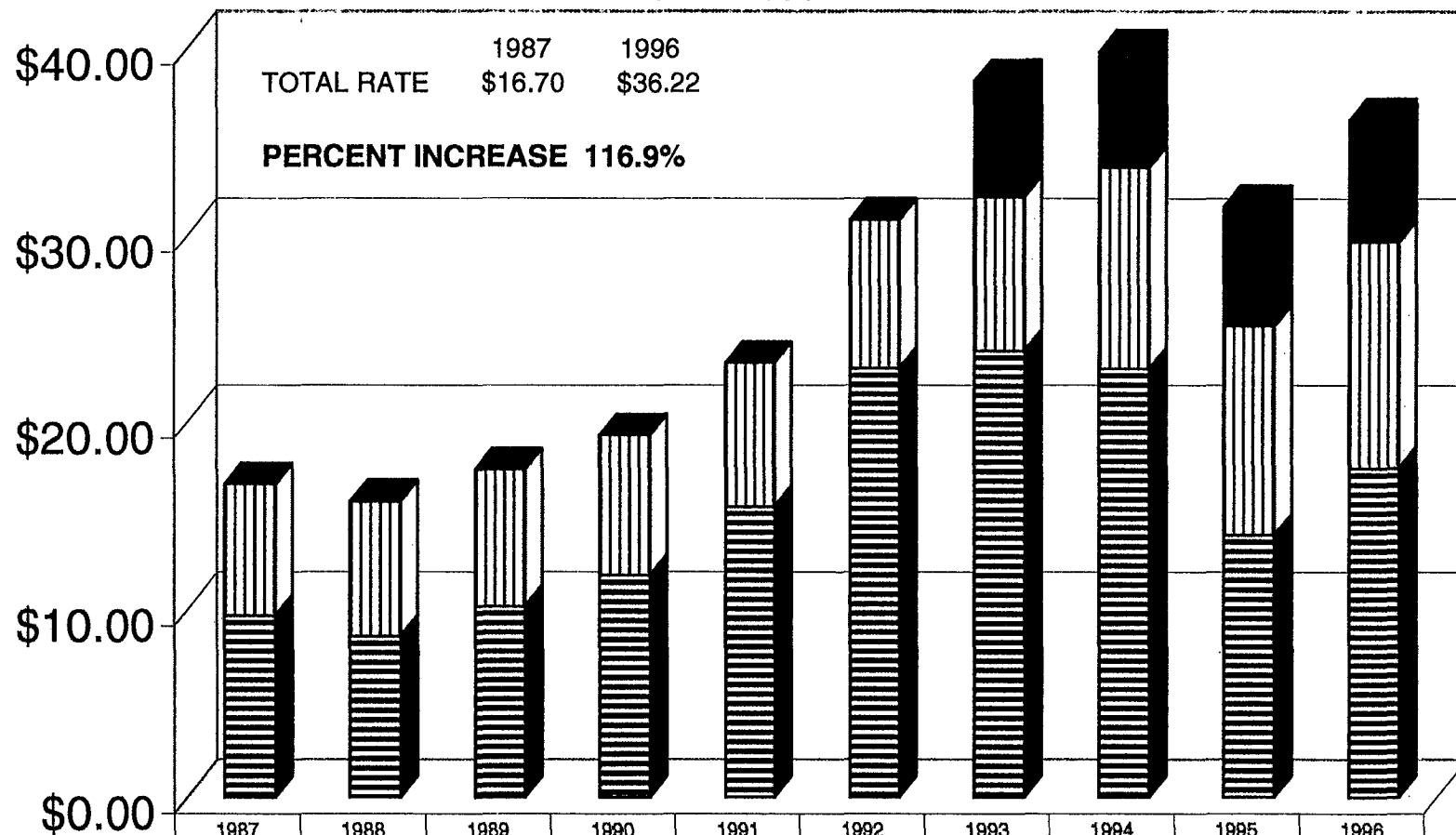


FIGURE 4

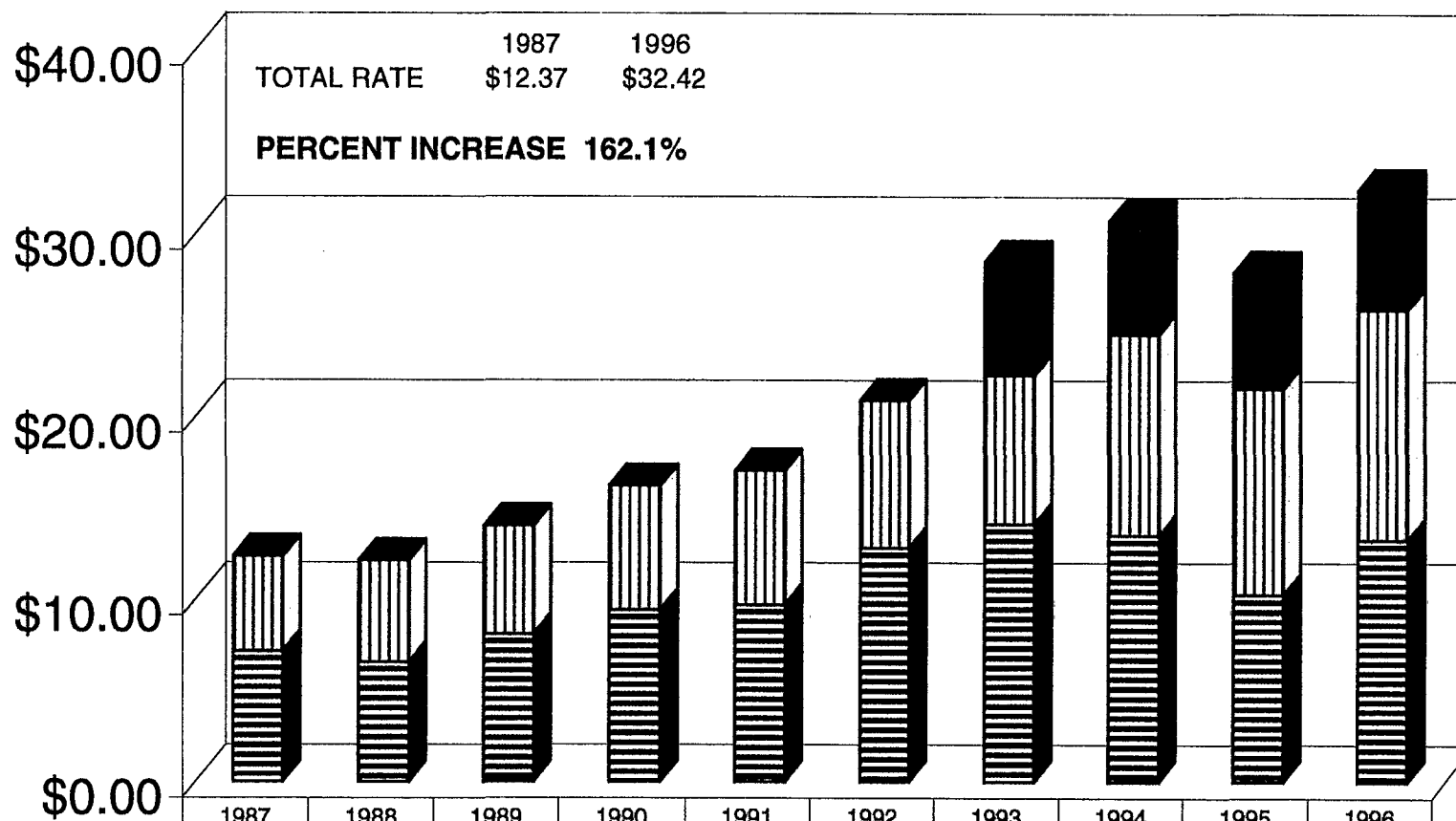
**USBR WATER RATE
WESTLANDS WATER DISTRICT - SAN LUIS CANAL
1987 - 1996**



	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
■ Restoration	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$6.20	\$6.20	\$6.35	\$6.53
□ Deficit & Capital Rate	\$7.01	\$7.22	\$7.29	\$7.48	\$7.70	\$7.95	\$8.22	\$10.78	\$11.22	\$12.12
▨ Total O&M Rate	\$9.69	\$8.58	\$10.19	\$11.83	\$15.51	\$22.91	\$23.87	\$22.89	\$13.99	\$17.57

FIGURE 5

USBR WATER RATE DEL PUERTO WATER DISTRICT 1987 - 1996



	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Restoration	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$6.20	\$6.20	\$6.35	\$6.53
Deficit & Capital Rate	\$5.21	\$5.58	\$5.97	\$6.82	\$7.37	\$8.08	\$8.15	\$10.99	\$11.31	\$12.59
O&M Rate	\$7.16	\$6.56	\$8.08	\$9.43	\$9.71	\$12.84	\$14.15	\$13.54	\$10.28	\$13.30